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09/657,272	09/07/2000	Toru Matama	Q58745	9969

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EXAMINER	
EDWARDS, PATRICK L	

ART UNIT	PAPER NUMBER
2621	

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/657,272	MATAMA, TORU	
	Examiner	Art Unit	
	Patrick L. Edwards	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,8-17,19-22 and 24-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6,8-17,19-22 and 24-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02-23-2005 has been entered.

Response to Arguments

2. The applicant's arguments, filed on 02-23-2005 , have been fully considered. A response to these arguments is provided below.

35 USC 112, Second Paragraph Rejections

Summary of Argument:

Applicant has amended claims 1, 4, 5, 14, 16, 17, 19, 20, 32, and 33 to correct the previous 112(2) problems and overcome the rejections. Claims 36-38 are cancelled. Applicant argues that the amendments have fully addressed the previous rejection.

Examiner's Response:

The examiner agrees. The previous rejections under 112(2) are hereby withdrawn. New 112(2) rejections will be provided below.

Prior Art Rejections

Summary of Argument:

1. Applicant amended independent claim 1 by adding a new limitation to the claim. Applicant argues that Stevenson fails to disclose this added limitation.

2. Applicant traverses the rejection to claim 5 and argues that Stevenson fails to disclose the limitation of transferring a mirror.

3. Regarding claims 15, 16, 31, and 32, applicant argues that there is no motivation to combine the LeCouteur and Sugiura references.

4. Applicant traverses the rejection to claim 16 and argues that the Sugiura disclosure is not specific enough to disclose all of the limitations of the claim.

5. Applicant traverses the rejection to claim 31 and argues that Sugiura fails to disclose "changing focusing positions of the specified detecting light and invisible light in accordance with whether at least one of the foreign matter and the scratch in the optical element is detected by the invisible light or at least one of the foreign matter and the scratch on the image recording medium is detected by invisible light."

6. Applicant traverses the rejection to claim 33 and argues that Sugiura fails to disclose that in the first detecting step, a focusing position of the invisible light is set on the image recording medium, and in the second detecting step, the focusing position of the invisible light is changed from the image recording medium.

Examiner's Response:

1. Since the added limitation has not yet been discussed, it will be addressed for the first time in the below rejection.

2. Applicant's arguments have been fully considered and are persuasive. A new rejection will be provided below.

3. Applicant's arguments have been fully considered but are unpersuasive. A motivation to combine these references was provided in the previous rejection. It will be provided in the below rejection.

4. Applicant's arguments have been fully considered but are not persuasive. The rejection to claim 16 was not based solely on Sugiura; it was based on the three way combination of Stevenson, LeCouteur, and Sugiura. The combination of these three references—not just the Sugiura reference taken in isolation—must disclose all the claimed limitations. The combination does disclose all the limitations of the claim. The rejection will be provided below.

5. The argument given in #4 above is applicable here. The combination of references must disclose all the limitations, not just a single reference taken in isolation. The combination in question does disclose all the limitations of the claim and the rejection will be provided below.

6. The Sugiura reference was not even used in the rejection to claim 33. This argument is moot.

Specification

3. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. In its current form, the specification appears to be a machine translation of a japanese patent. The specification should be in proper idiomatic english which is not confusing to the reader, and does not make the material difficult to understand.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 3-6, 8-17, 19-22, and 24-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 17, the claimed limitation of "reading the specified light one-dimensionally in a second direction which is perpendicular to the first direction, after a focusing position of the specified detecting light is set on a position of an optical element disposed in the optical path of the visible light, the focusing position being different from a position of the image recording medium" is unclear as currently recited. The problem with this appears to arise from the comma before the word 'after.' With the comma in that position, the word 'after' signals that something is following in chronological order (i.e. 'after we grab some dinner, we'll go see a movie'). When nothing follows in chronological order, the phrase is unintelligible (i.e. 'after we grab some dinner, the dinner being italian). The instant claim is in such non-sensical form ("after a focusing position of the specified detecting light is set on a position of an optical element disposed in the optical path of the visible light, the focusing position being different from a position of the image recording medium').

The other alternative is that the comma isn't supposed to be there. In that case, the claim would essentially recite, "scanning a specified detecting light ... and simultaneously reading the specified detecting light ... after a focusing position ... is set ..., the focusing position being different from a position of the image recording medium." This alternative makes more sense. It seems more likely that the latter option is what the claim was actually intended to say, and the examiner will therefore interpret the claim in this manner.

Appropriate correction and/or clarification is required.

Claims 3-6, 8-16, 19-22, and 24-32 are rejected because they are dependent on an indefinite claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 3, 4, 6, 8-11, 17, 19-20, 22, 24-27 and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Stevenson et al. (USPN 6,393,161) and Sugiura et al. (USPN 6,034,766)

With regard to claim 1, the first paragraph in the body of the claim recites "scanning a specified detecting light in a first direction using an optical path of the visible light, and simultaneously reading the specified detecting light one-dimensionally in a second direction which is perpendicular to the first direction of the scanning and the one dimensional reading is continued during scanning". These limitations amount to nothing more than a scanner which scans in a main scanning direction (i.e. up and down the page) and a sub-scanning direction (i.e. from left to right across the image). The scanner moves vertically down the page line-by-line and each line is read horizontally (i.e. the one-dimensional reading is continued for each line). These steps are typically performed in any type of image scanning operation, such as copier, facsimile, etc. For instance, Stevenson discloses scanning documents by passing a narrow slit of light in a process direction P over an image to be scanned. This process direction P is analogous to

the claimed "first direction". Stevenson discloses that this slit of light (or scan line) is read by a photosensitive chip (Stevenson column 3 lines 30-46) Inherently, the reading of an individual scan line is done in a direction perpendicular to the main scanning direction. This is the case in the Stevenson reference, where the data of each scan line is read by a linear photosensitive chip (stevenson col. 3 lines 30-46). We could also say that the linear photosensitive chip discloses in Stevenson reads the data "one-dimensionally", since it reads a row of pixels (or a scan line) one pixel at a time across the image (stevenson col. 3 lines 30-46).

The claim further requires that the above operation is performed "after a focusing position of the specified detecting light is set on a position of an optical element disposed in the optical path of the visible light, the focusing position being different from a position of the image recording medium." Stevenson fails to expressly disclose this limitation. Sugiura, however, who is in the same field of endeavour (optical member inspection), discloses setting a focusing position of the detecting light on an optical element in the optical path of the visible light (Suigura col. 9 lines 17-22 in conjunction with figures 1, 4, and 5: the reference describes focusing the imaging lens on an optical element in the optical axis 1. The reference describes that the focussing can be moved back and forth between the optical elements. In the cited excerpt, the focus position is on the line sensor. This position is different from a position of the image recording medium). It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Stevenson's two-direction scanning by performing it after the imaging lens was focused on an optical element in the optical path as taught by Sugiura. Such a modification would have allowed for a way to inspect an optical member for imperfections in much the same way that an image recording medium is inspected for imperfections (Sugiura col. 8 lines 64-65). This would have made for a better system of defect removal in that it inspected all the possible problem sources instead of just one.

Stevenson further discloses determining from the read detecting light whether light quantity of the one-dimensionally read detecting light contains a portion where the light quantity data changes identically at an identical reading position (col. 4 lines 6-22). Stevenson discloses determining whether "a particular location" along a scan line always outputs black (or an equivalent set of colors) (see Stevenson col. 4 lines 6-23). This 'particular location along a scan line is analogous to the claimed "identical reading position". Stevenson disclsoses detecting pixels of a same color at this particular location. Detecting pixels of the same color is analogous to the detection of identical light quantity data.

Stevenson discloses that the above determination is performed for the purpose of detecting either dirt (or an abrasion) on the surface of the window 12 (col. 3 lines 47-55 in conjunction with Figure 1). The window 12 disclosed in Stevenson qualifies as an "optical element" as recited in the claim.

With regard to claim 3, Stevenson discloses that the one-dimensional reading is performed by photosensitive chip 16 (col. 3 lines 30-46). This photosensitive chip qualifies as the claimed "line sensor" in that it defines a single linear array of photosensors.

With regard to claim 4, Stevenson discloses that the scanning is performed by allowing the image recording medium and the line sensor to move relatively by transferring the image recording medium in relation to the line sensor (col. 3 lines 6-15, 30-46). Stevenson discloses transferring a sheet of paper in relation to the photosensitive

chip (see the above cited passage in conjunction with Figure 1). As was discussed above, the photosensitive chip disclosed in Stevenson is a line sensor. It follows that a sheet of paper qualifies as an image recording medium.

With regard to claim 6, Stevenson discloses the step of issuing an alarm when a streak is detected (col. 5 lines 30-32). Stevenson discloses issuing an error message. This error message qualifies as the claimed "alarm".

With regard to claim 8, Stevenson discloses that the optical element is at least one of a diffusion plate and a mirror (col. 3 lines 16-20 in conjunction with Figure 1). The window 12 disclosed in Stevenson qualifies as the claimed "diffusion plate" per the applicant's specification (see pg. 24, inter alia). Obviously, the mirror 14 in Stevenson qualifies as the claimed mirror.

With regard to claim 9, Stevenson fails to expressly disclose that the position of the optical element is changed in accordance with the detection result. Sugiura, however, discloses changing the position of the optical element based on the detection result (Sugiura column 9, lines 44-47: The reference discloses that a slide table unit is used to move the optical member (i.e. optical member) based on data output from the line sensor (i.e. detection result).).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Stevenson by adding the ability to change the position of the optical member based on the detection result as taught in Sugiura et al. because such an ability allows the system to automatically diminish errors in the scanning system caused by scratches or dust particles on the actual optical elements in the system. This will, therefore, reduce false detections and increase the overall effectiveness of the system.

With regard to claim 10, Stevenson discloses adjusting a detection area (col. 5 lines 16-29). Stevenson discloses establishing a set of neighboring pixels around a detected streak, and adjusting the size of the set of pixels based on the size of the streak. This set of neighboring pixels qualifies as the claimed detection area.

With regard to claim 11, Stevenson discloses that the detecting light is visible (col. 4 lines 16-23).

With regard to claims 17, 19-20, 22, 24, 25-27, and 37, which merely call for an apparatus for performing the method of claims 1, 3-6, 8, 10-11, and 36, Stevenson discloses such an apparatus as can be seen in Figure 1.

8. Claims 5 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Stevenson and Sugiura as applied to claims 3 and 19 above, and further in view of Suganuma (USPN 6,034,794). The arguments as to the relevance of Stevenson and Sugiura as applied above are incorporated herein.

With regard to claim 5, the combination of Stevenson and Sugiura fail to expressly disclose that the scanning is performed by trasnferring a mirror reflecting the specified detecting light in the optical path. Suganuma, however, discloses this limitation of mirror transferring (Suganuma col. 5 lines 40-60). It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Stevenson and Sugiura's scanning method by moving (transferring) the mirrors as taught by Suganuma. Such a modification would have allowed for a method and system, which is well known in the art, and that allows for the image recording medium to stay stationary while its image is being scanned (Suganuma col. 5 lines 40-60). This makes for a more robust system with greater flexibility.

9. Claims 12 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stevenson as applied to claims 11 and 27 above, and further in view of Denber (USPN 5,214,470). The arguments as to the relevance of Stevenson as applied above are incorporated herein.

With regard to claim 12, Stevenson fails to expressly disclose that the image recording medium is removed from the optical path of the visible light, before the visible light is scanned. Denber, however, discloses removing the image recording medium (i.e. the document) from the platen (i.e. the optical path) before the visible light is scanned. It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Stevenson by initially scanning the platen in the absence of a document as taught by Denber. Such a modification would have allowed for a method which provided information regarding the presence and location of foreign matter and/or scratches on the optical member (Denber col. 1 lines 35-40). This would have made for easy distinguishability between defects which existed on the image and defects which existed on the optical member itself.

With regard to claim 28, which merely calls for an apparatus for performing the method of claim 12, both Stevenson and Denber disclose such an apparatus (as can be seen in Figure 1 of the respective references).

10. Claims 13-14 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stevenson and Sugiura as applied to claims 1 and 17 above, and further in view of LeCouteur (GB 1547811 A). The arguments as to the relevance of Stevenson and Sugiura as applied above are incorporated herein.

With regard to claim 14, which is representative of claim 13, Stevenson discloses detecting at least one of a foreign matter which adheres and a scratch which exists on the recording medium. Stevenson fails to expressly disclose that the detecting light is an invisible light. LeCouteur, however, discloses detecting foreign matter by reading a specified detecting light by scanning an invisible light (LeCouteur pg. 1, left column, lines 34-39). The infrared light disclosed in LeCouteur is an invisible light. It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Stevenson by using invisible light to detect foreign matter as taught by LeCouteur. Such a modification would have allowed for a method in which it was "relatively easy to detect electrically those portions of the signal which indicate the presence of imperfections" (LeCouteur pg. 1, rt. Column, lines 52-58).

With regard to claims 29 and 30, which merely call for an apparatus for performing the method of claims 13 and 14, both Stevenson and LeCouteur disclose such an apparatus (as can be seen in Figure 1 of the respective references).

11. Claims 15-16 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Stevenson and LeCouteur as applied to claim 14 above, and further in view of Sugiura et al. (USPN 6,034,766). The arguments as to the relevance of the aforesaid combination as applied above are incorporated herein.

With regard to claim 15, which is representative of claim 16, the claim calls for changing the focusing position of the detecting light. Such a focusing element is absent from the combination of Stevenson and

LeCouteur, but is disclosed in Sugiura et al. (see column 9, lines 17-19: The reference describes that the imaging lens can be used to focus with respect to the line sensor.).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LeCouteur by adding the focusing capabilities taught in Sugiura et al. because the ability to focus the image allows for the best and most accurate detection of scratches and foreign matter.

12. Claim 33 is rejected under 35 U.S.C. 103(a) as being anticipated by the combination of Denber (USPN 5,214,470), LeCouteur (GB 1547811), and Sugiura (USPN 6,034,766).

Denber discloses a first detecting step of detecting a first optical defect existing on an optical element forming an optical sytem which reads the image data from the image recording medium (col. 1 lines 51-56).

Denber further discloses a second detecting step of detecting a second optical defect existing on the image recording medium (col. 1 lines 61-64).

The claim further requires the use of invisible light in the detection of foreign matter. This feature is absent from Denber, but is disclosed in LeCouteur (see pg. 1, left column, lines 34-39: The reference describes using infrared (i.e. invisible) light to detect imperfections in images). It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Denber by using invisible light to detect foreign matter as taught by LeCouteur. Such a modification would have allowed for a method in which it was "relatively easy to detect electrically those portions of the signal which indicate the presence of imperfections" (LeCouteur pg. 1, rt. Column, lines 52-58).

The claim further requires the additional limitation of changing a focusing position between the first and second detecting steps. This feature is absent from the combination of Denber and LeCouteur, but is disclosed in Sugiura (see column 9, lines 17-19: The reference describes that the imaging lens can be used to focus with respect to the line sensor.).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LeCouteur by adding the focusing capabilities taught in Sugiura et al. because the ability to focus the image allows for the best and most accurate detection of scratches and foreign matter.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick L. Edwards whose telephone number is (571) 272-7390. The examiner can normally be reached on 8:30am - 5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick L. Edwards

Art Unit 2621

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ANDREW W. JOHNS
PRIMARY EXAMINER